
Sheet 10 (Spaces and ADT)

1. Knowing that a space contains entities and defines axioms according which these entities are related and manipulated, What are the entities included in the vector (linear) space? Mention some axioms that define how these entities are related.
2. How Euclidian space is different from vector (linear) space?
3. How Affine space is different from Euclidian and vector (linear) spaces
4. In the context of scalars, point, and vectors spaces, what is an abstract space? How this is related to abstract data types in computer science?
5. Vectors are directed quantities. How they are interpreted geometrically?
6. Define the **convexity** of a geometric object and **convex hull** of a set of points.
7. Show that how a plane can be defined using three points that are not on the same line.
8. Real-world objects are three dimensional objects but they have some characteristics that fit them with existing graphics hardware which deals with simple planner geometric objects, What are these characteristics?